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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,061

03/30/2006

Gilles Rousselier

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EXAMINER

JONES, HUGH M

ART UNIT

PAPER NUMBER

2128

MAIL DATE

DELIVERY MODE

04/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,061	Applicant(s) ROUSSELIER ET AL.	
	Examiner Hugh Jones	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/25/06, 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/25/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-17 of US Application 10/595,061, filed 1/25/2006, are pending.

Specification

2. There are no separate sections with appropriate section titles in the specification.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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4. Claims 1-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter since the claims as a whole: 1) are not proper process claims and 2) are directed to abstract ideas.

1) the claims are not proper process claims: There is no tie to another statutory class (or transformation of matter). A valid process under 35 USC § 101 must either 1) operate to change articles or materials to a different state or thing, or 2) be tied to a particular machine or apparatus. In order to qualify as a statutory process, the claim should positively recite the other statutory class to which it is tied, for example by identifying the apparatus that accomplishes the method steps. Further, a recitation of a computer in the preamble does not appear to be sufficient to tie the process to a particular apparatus. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone (See In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1.951)).

2) the claims are directed to abstract ideas: the claims are drawn to abstract representations of physical phenomena at the microscopic and mesoscopic levels with no practical application, and in fact pre-empt use of the abstract representation (idea) itself.

5. Claims 1-17 are also rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process (see 112-2

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rejections), results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Due to the nature of the claims, only examples can be provided (because depending upon the various premises implied by the ambiguity of the claims, a number of alternative 112-1 issues may arise):

- claim 1 only requires: "the number of "grain" blocks is less than or equal to ten".

If the number is "1"; then, given claim 13. "...characterized in that the number of "grain boundary" blocks is greater than or equal to one...", it is unclear how there can be a slip system or slipping when there is only one grain.

- furthermore, claim 10 requires: ("10. Method according to claim 1, characterized in that the numerical calculation method is a finite element calculation method and in that a single "grain" block and optionally a "grain boundary" block or a "hole" block is

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(are) associated with each integration point of the finite element calculation method in such a manner that the distribution of the blocks is homogeneous.”). However, the use of FEM is not enabled when there are only one or two grains (see previous discussion).

- It is not clear how to define the grain – for example, dimensions, orientations, etc., and what the criteria are for such characterizations.

- in claim 1, “characterized in that: the number of “grain” blocks is less than or equal to ten, the number of slip systems is less than or equal to six,” appears to not be enabled for the following reason: In amorphous systems, the number of slip planes is equal to the number of grain blocks - so for ten blocks, there would be ten slip planes. However, if this analysis is incorrect in view of the redefined nature of the slip systems, Applicants are kindly requested to provide a detailed explanation.

. - Claim 9 call for a von Mises analysis. However, as Applicants are aware, for *general plastic strain* of a polycrystalline sample, *five independent slip systems* must be available for the strain to be accommodated purely by glide. However, if this analysis is incorrect in view of the redefined nature of the slip systems, Applicants are kindly requested to provide a detailed explanation.

- In claim 1, the use of grain boundaries is optional; however, they are required in the model, by definition:

“[0057] The polycrystalline model used in the invention will now be described.

[0058] According to the invention, in order to construct the polycrystalline model, elemental blocks of three different

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kinds are used: [0059] "grain" blocks which represent the behaviour of crystal grains; [0060] "grain boundary" blocks which represent the behaviour of grain boundaries; [0061] "hole" blocks which represent cavities." It is unclear how to make and use the invention without the grain boundaries.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the steps to actually carry out the modeling.

10. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Examples of ambiguities include:

- claim 13. "...a criterion is defined such that, when the criterion is met at one point in the object, a zero mechanical strength of the material is allocated to the point considered in order to simulate the presence of a crack." The meaning is unclear. Similarly, for claim 14.

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- "the word "peculiar" in claim 1 ("determined on the basis of a plurality of slip systems peculiar to the solid material") is ambiguous. Please check for other occurrences.
- The meaning of claim 3 is unclear ("3. Method according to claim 1, characterized in that, for an isotropic material having a cubic structure, the deformation is determined on the basis of two families of three slip systems, a first family corresponding to the faces of the cube, and the second family corresponding to the planes at 45.degree. to those faces, and in that the number of "grain" blocks is equal to seven, the "grain" blocks being obtained by symmetrization of two primitive "grain" blocks located on the 45.degree. great circles of the pole figure.")

11. Claims 1-17 provide for the use of the *microscopic behavior model*, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. The claims appear to merely recite a characterization of the behavior model. This also applies to claim 6: "characterized in that the progress of a phase transformation is also determined."

No Prior Art Rejections

12. The disclosure in the specification appears to contain novel material. However, in general, for the reasons provided earlier, the state of the claims in the instant

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application precludes a limitation-by-limitation assessment of the claimed invention compared to the prior art. The Examiner cannot interpret the meanings of the claims without relying on considerable speculation. See *In re Steele*, 305 F.2d 859,134 USPQ 292 (CCPA 1962).

13. Applicant's help is requested in showing specific support for the claim limitations so that precise definitions for the claimed features can be determined; Applicants are also requested to provide a detailed explanation of the claimed invention, as it relates to the specification. It is difficult to unambiguously determine the meaning of many of the recited phrases. This is compounded by the fact that the subject matter is extremely complicated; furthermore, many standard terms in the (such as slip systems, grains, etc.) are redefined in the specification. Applicants are also kindly requested to provide suggested search terms in order to facilitate a detailed search of the art.

14. However, in the interests of compact prosecution, The following observations are made with respect to potential art rejections:

- Official notice is taken that there are only three slip systems in hexagonal close packed metals such as Cadmium. Thus, the limitation of claim 1 "the number of slip systems is less than or equal to six," does not appear to be patentable.
- As for (in claim 1) "characterized in that: the number of "grain" blocks is less than or equal to ten"; the number of grains depends upon the intended use - which determines the size of the specimen to be studied.

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- Claim 17 does not limit the claimed method (...the use in service of the workpiece generates at least one phenomenon from among the phenomena of creep, fatigue and fatigue-creep).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hugh Jones whose telephone number is (571) 272-3781. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hugh Jones/
Primary Examiner, Art Unit 2128